January 7, 1998 TEL:805-498-2111 FAX:805-498-3804 WEB:http://www.semtech.com

AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

- Very low reverse recovery time
- Low forward voltage drop
- Glass passivated for hermetic sealing
- Low switching losses
- Soft, non-snap off, recovery characteristics

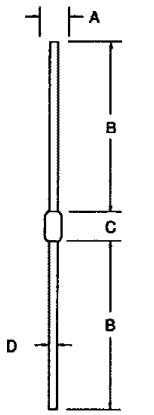
QUICK REFERENCE DATA

- V_R = 50 - 200V
- I_F = 4.0A
- t_{rr} = 30nS
- V_F = 1.05V

ABSOLUTE MAXIMUM RATINGS (@ 25°C unless otherwise specified)

	Symbol	3PFT05	3PFT1	3PFT15	3PFT2	Unit
Working reverse voltage	V_{RWM}	50	100	150	200	V
Repetitive reverse voltage	V_{RRM}	50	100	150	200	V
Average forward current (@ 55°C, lead length 0.375")	$I_{F(AV)}$	← 4.0 →				A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	← 25 →				A
Non-repetitive surge current (t_p = 8.3mS, @ V_R & T_{jmax})	I_{FSM}	← 90 →				A
Storage temperature range	T_{STG}	← -65 to +175 →				°C
Operating temperature range	T_{OP}	← -65 to +175 →				°C

MECHANICAL



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DIM	DIMENSIONS MM MIN	MM MAX	INCHES MIN	INCHES MAX	NOTE
A	-	4.50	-	.177	-
B	28.0	-	1.10	-	-
C	-	5.00	-	.197	-
D	-	1.35	-	.053	-

Weight = 0.029oz

These products are qualified in Europe to DEF STAN 59-61 (PART 80)/029 available to F and FX levels.

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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	3PFT05 3PFT1 3PFT15 3PFT2	Unit
Average forward current max. (pcb mounted; T_A = 55°C)			
for sine wave	$I_{F(AV)}$	← 1.8 →	A
for square wave (d = 0.5)	$I_{F(AV)}$	← 1.9 →	A
Average forward current max. (T_L = 55°C; L = 3/8")			
for sine wave	$I_{F(AV)}$	← 3.8 →	A
for square wave	$I_{F(AV)}$	← 4.0 →	A
I^2t for fusing (t = 8.3mS) max.	I^2t	← 33 →	A^2S
Forward voltage drop max. @ I_F = 3.5A, T_j = 25°C	V_F	← 1.05 →	V
Reverse current max.			
@ V_{RWM}, T_j = 25°C	I_R	← 1.0 →	µA
@ V_{RWM}, T_j = 100°C	I_R	← 10 →	µA
Reverse recovery time max. 0.5A I_F to 1.0A I_R. Recovers to 0.25A I_{RR}.	t_{rr}	← 30 →	nS
Junction capacitance typ. @ V_R = 5V , f = 1MHz	C_j	← 92 →	ρF

THERMAL CHARACTERISTICS

	Symbol	3PFT05 3PFT1 3PFT15 3PFT2	Unit
Thermal resistance - junction to lead			
Lead length = 0.375"	$R_{\theta JL}$	← 26 →	°C/W
Lead length = 0.0"	$R_{\theta JL}$	← 12 →	°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	$R_{\theta JA}$	← 75 →	°C/W

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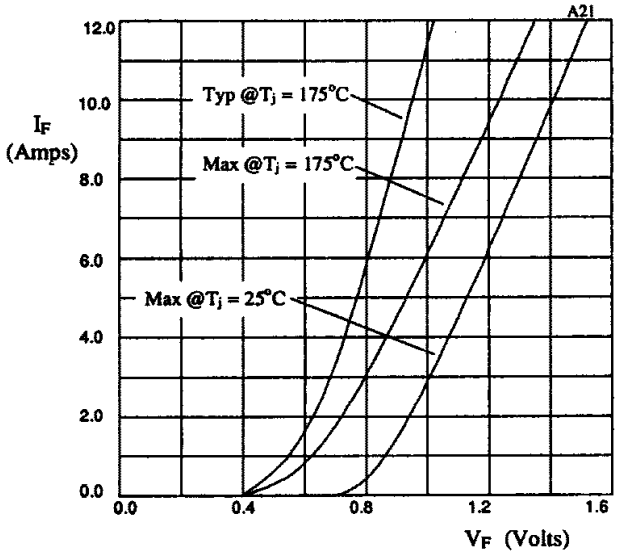

Fig 1. Forward voltage drops as a function of forward current.

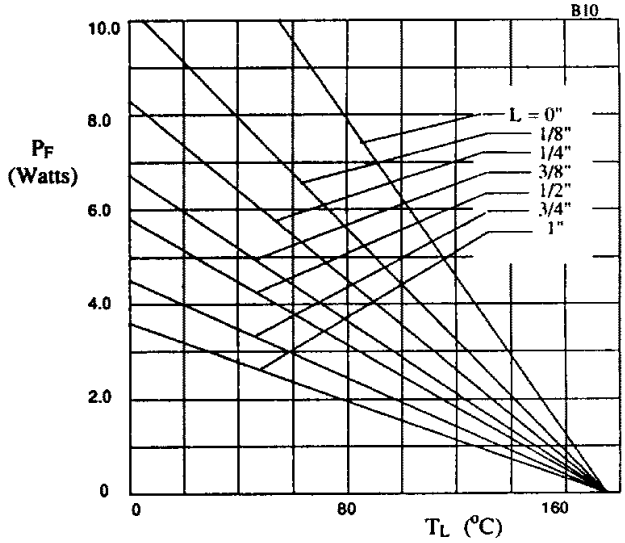

Fig 2. Maximum power versus lead temperature.

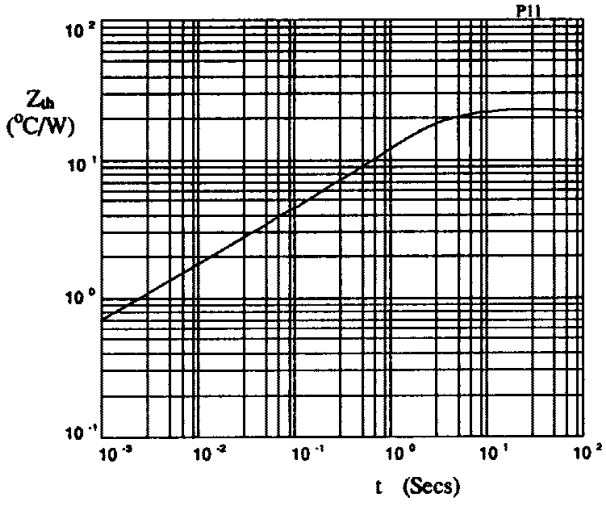

Fig 3. Transient thermal impedance characteristic.

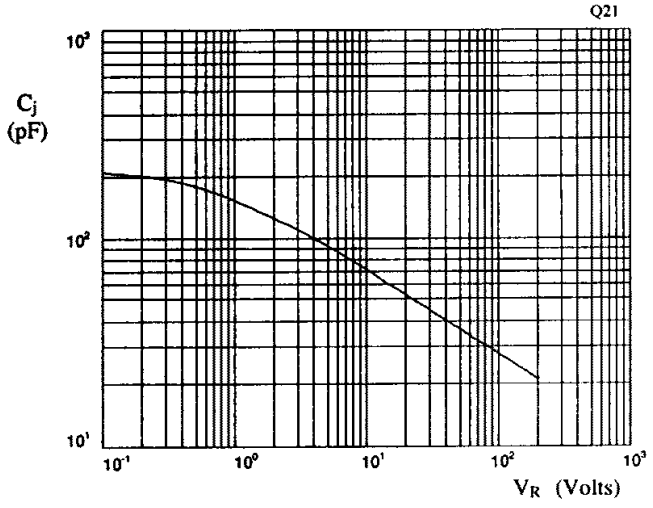

Fig 4. Typical junction capacitance as a function of reverse voltage.

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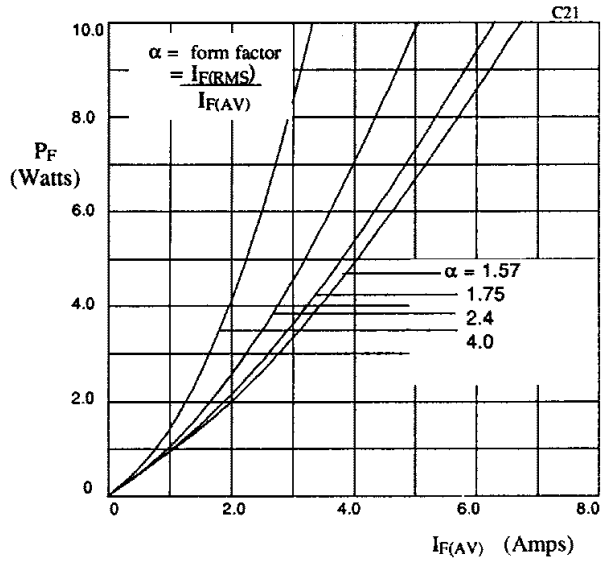

Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

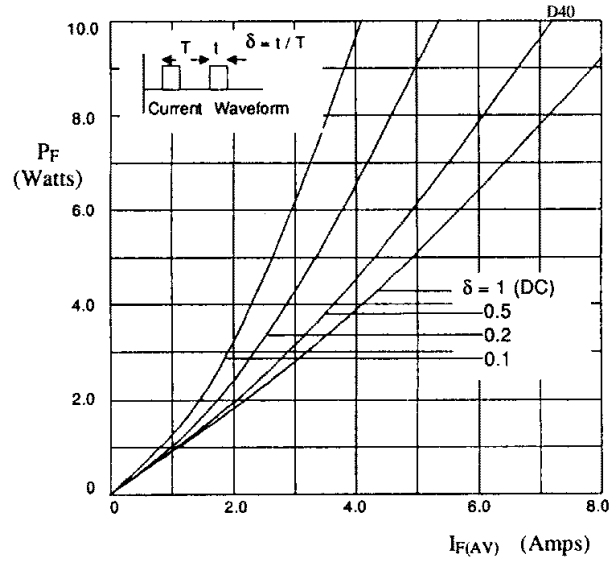

Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

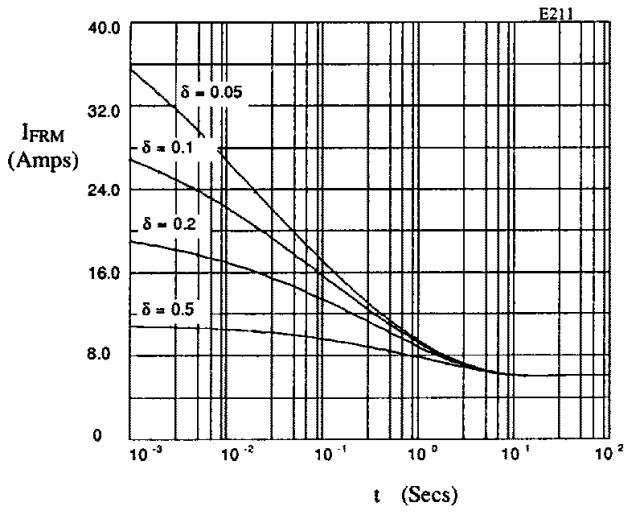

Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL}$ = 22 °C/W; V_{RWM} during 1 - δ.

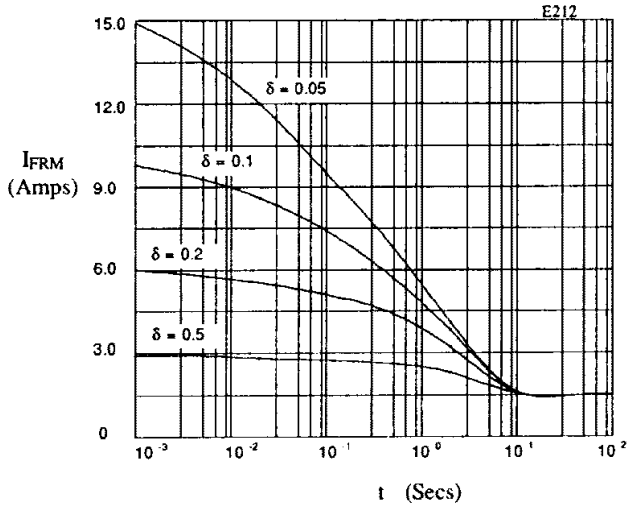

Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL}$ = 75 °C/W; V_{RWM} during 1 - δ.

